

1 What is claimed is:

2 1. A method for targeting virtual advertisements at a user's terminal, comprising:
3 assigning at least one virtual advertisement spot to a program;
4 assigning one or more virtual objects to the at least one virtual advertisement
5 spot;
6 generating a retrieval plan; and
7 providing the retrieval plan to the terminal, wherein the retrieval plan directs the
8 terminal to select one of the one or more virtual objects.

9 2. The method of claim 1, further comprising:

10 defining one or more target categories; and
11 for one or more of the target categories, designating one or more groups, wherein a
12 group is based on common viewer characteristics.

13 3. The method of claim 2, further comprising assigning the terminal to one or more of the
14 groups, comprising:

15 generating group assignment rules;
16 providing the group assignment rules to the terminal;
17 storing the group assignment rules at the terminal; and
18 determining one or more group assignments based on the group assignment rules and
19 data related to the terminal.

20 4. The method of claim 3, wherein the data related to the terminal includes one or more
21 of Area of Dominant Influence (ADI), zip code+4, demographic data and programs watched
22 data, virtual objects viewed, on-screen questionnaires and characteristics imported from
23 marketing databases, the group assignments being updated to reflect changes in the ADI, zip

1 code+4, demographic data, programs watched data, virtual objects viewed, on-screen
2 questionnaires, and characteristics imported from marketing databases.

3 5. The method of claim 2, wherein generating the retrieval plan comprises:
4 designating a unique group mask for one or more of the groups; and
5 assigning one or more of the groups to one of the virtual objects, wherein the group
6 mask indicates whether the terminal displays a particular virtual object.

7 6. The method of claim 2, wherein the retrieval plan and the group assignment rules are
8 sent periodically to the terminal.

9 7. A method of targeting virtual objects, comprising:
10 providing a program containing one or more virtual object locations;
11 providing virtual objects for one or more of the virtual object locations;
12 providing alternate virtual objects for one or more of the virtual object locations; and
13 generating a retrieval plan at one or more viewer's terminals, wherein the retrieval plan
14 designates which of the one or more virtual object locations displays an alternate virtual object.

15 8. The method of claim 7, wherein the program is a television program.

16 9. The method of claim 7, wherein the program is one of an advertisement, an electronic
17 program guide, and an Internet web page.

18 10. The method of claim 7, wherein at least one of the virtual object locations is fixed in
19 position across frames of the program.

- 1 11. The method of claim 7, wherein at least one of the virtual object locations moves
2 spatially in the program with time.
- 3 12. The method of claim 7, wherein at least one of the virtual objects is interactive.
- 4 13. The method of claim 7, wherein the program is broadcast to the terminals, further
5 comprising:
6 creating categories of virtual objects and programs;
7 within one or more of the categories, defining one or more groups;
8 generating group assignment rules based on common viewer characteristics;
9 providing the group assignment rules to one or more of the terminals;
10 storing the group assignment rules in one or more of the terminals;
11 using the stored group assignment rules, assigning one or more of the terminals to one
12 or more of the groups; and
13 comparing the retrieval plan to the group assignments to determine virtual objects to
14 display in the one or more virtual object locations.
- 15 14. The method of claim 13, wherein generating the retrieval plan, comprises:
16 assigning the virtual objects to the one or more virtual object locations;
17 assigning the alternate virtual objects to at least one of the one or more virtual object
18 locations;
19 assigning a group to one or more of the virtual objects and the alternate virtual objects;
20 and
21 creating a group mask assignment, wherein the group mask assignment is used at
22 the terminals to compare the retrieval plan to the assignments of the terminals to the
23 groups.

1 15. The method of claim 14, wherein assigning the group to the virtual objects and the
2 alternate virtual objects, comprises:

3 ranking one or more programs based on the categories of targeted virtual objects and
4 a first percentage of total viewers who may view the one or more programs;

5 ranking the targeted virtual objects based on a second percentage of the total viewers;

6 determining, for the one or more ranked programs and the categories of targeted
7 virtual objects, targeted virtual objects with overall highest rankings, based on the first and the
8 second percentages;

9 assigning targeted virtual objects with the overall highest rankings to be displayed as
10 the virtual objects; and

11 assigning targeted advertisements with lower overall rankings to be displayed as the
12 alternate virtual objects.

13 16. The method of claim 13, wherein the common viewer characteristics include viewer
14 demographic information.

15 17. The method of claim 13, wherein the common viewer characteristics include viewer-
16 entered information.

17 18. The method of claim 13, wherein the common viewer characteristics include programs
18 watched data.

19 19. The method of claim 13, wherein the common viewer characteristics include virtual
20 objects watched data.

1 20. The method of claim 13, wherein one or more of the virtual object locations contain
2 an interactive virtual object, and wherein the common viewer characteristics include viewer
3 activation of the interactive virtual object.

4 21. The method of claim 13, wherein the terminals are television set top terminals.

5 22. The method of claim 13, wherein one or more of the terminals is incorporated into one
6 of a television, a personal computer and a PDA with video viewing capabilities.

7 23. The method of claim 13, wherein one or more of the terminals is a satellite television
8 receiver.

9 24. The method of claim 13, further comprising:
10 at one or more of the terminals, recording in a memory an identification of a virtual
11 object displayed in a virtual object location;
12 providing the identification to a remote site; and
13 deleting the identification from the memory.

14 25. A method of targeting virtual objects to terminals,
15 comprising:
16 creating a package of targeted virtual objects;
17 providing the package to one or more of the terminals;
18 generating a retrieval plan;
19 storing the retrieval plan at one or more of the terminals; and

- 1 providing a program to one or more of the terminals, the program including at least
2 one virtual object location, wherein the retrieval plan designates virtual objects to be displayed
3 during a display of the program.
- 4 26. The method of claim 25, further comprising:
5 generating group assignment rules;
6 storing the group assignment rules at one or more of the terminals; and
7 creating group assignments by assigning one or more of the terminals to one or more
8 groups based on the group assignment rules.
- 9 27. The method of claim 26, further comprising at one or more of the terminals receiving
10 the program, retrieving one of the targeted virtual objects for display in the at least one virtual
11 object location.
- 12 28. The method of claim 27, wherein the retrieval step, comprises:
13 comparing the group assignments to the retrieval plan; and
14 selecting a virtual object for display based on the comparison.
- 15 29. The method of claim 26, wherein one or more of at least one virtual object locations
16 contains an interactive virtual object, further comprising:
17 receiving a selection of the interactive virtual object; and
18 linking a terminal selecting the interactive virtual object to an alternate
19 program.
- 20 30. The method of claim 29, wherein the alternative program comprises an Internet web
21 site.

1 31. The method of claim 26, wherein the step of creating the group assignments comprises
2 analyzing individual terminal data and terminal group data.

3 32. The method of claim 31, wherein the individual terminal data comprises one or more
4 of viewer demographic data, programs watched data, virtual objects viewed data, on-screen
5 questionnaires, and characteristics imported from marketing databases, and wherein the
6 terminal group data, comprises one or more of ADI, zip code, and geographical data.

7 33. The method of claim 31, wherein one or more of the terminals comprises a global
8 positioning satellite receiver, further comprising:

9 determining a geographical location of one or more of the terminals; and
10 storing the geographical location of the one or more of the terminals as individual
11 terminal data.

12 34. A method for assigning targeted virtual objects to virtual object locations in one or
13 more programs, comprising:

14 identifying the one or more programs to carry the targeted virtual objects;
15 assigning the targeted virtual objects to target categories;
16 ranking one or more of the programs based on the target categories and a first
17 percentage of total viewers in one or more groups of viewers;
18 ranking the targeted virtual objects based on a second percentage of total viewers in
19 the one or more groups of viewers;

20 determining, for one or more of the programs and one or more of the target
21 categories, targeted virtual objects with overall highest rankings, based on the first and the
22 second percentages;

1 assigning one or more targeted virtual objects as default virtual objects;
2 assigning one or more targeted virtual objects as alternate virtual objects; and
3 assigning the default virtual objects and the alternate virtual objects to the virtual object
4 locations.

5 35. The method of claim 34, wherein the first and second percentages of total
6 viewers are based on viewer demographic information including zip code, ADI and
7 geographical data.

8 36. The method of claim 34, wherein assigning the default virtual objects and the alternate
9 virtual objects, comprises:

10 dividing one or more target categories into groups;
11 generating group assignment rules that are used to assign one or more of the terminals to
12 one or more of the groups;
13 storing the group assignment rules at one or more of the terminals, wherein processors
14 at the one or more terminals assign the terminals to one or more groups using the group
15 assignment rules;
16 generating a retrieval plan; and
17 providing the retrieval plan to one or more of the terminals receiving the
18 programs at the one or more terminals, comparing the group assignments to the retrieval
19 plan.

20 37. The method of claim 36, further comprising:
21 revising the retrieval plan and the group assignment rules; and
22 providing the revised retrieval plan and the revised group assignment rules to the one
23 or more terminals.

1 38. The method of claim 36, wherein the retrieval plan and the group assignment rules are
2 provided over an Internet.

3 39. The method of claim 34, wherein the package of targeted virtual objects is provided
4 to a terminal over an Internet.

5 40. The method of claim 34, wherein the package of targeted virtual objects is provided
6 to a terminal using one of a public switched telephone network, a cable television network, a
7 satellite television network, a local area network and a fiber optic network.

8
9 41. The method of claim 34, wherein virtual objects are provided with program content.

10 42. The method of claim 34, wherein virtual objects are provided independently of
11 program content.

12
13 43. A method for targeting virtual objects to subscribers in a television program delivery
14 system, comprising:

15 gathering information related to one or more of subscribers, wherein individual
16 subscriber's information is gathered and stored at individual subscriber's terminals;

17 analyzing the gathered information to determine a subscriber profile for one or more
18 of the subscribers;

19 correlating the subscriber profile with categories of virtual objects, wherein one or
20 more virtual object categories includes at least one virtual object; and

21 selecting from the correlated virtual object for display based on the correlation.

22 44. The method of claim 43, wherein the individual subscriber's information includes
23 virtual objects watched data.

1 45. The method of claim 43, further comprising defining virtual object locations, wherein
2 the virtual objects are displayed in the virtual object locations.

3 46. The method of claim 45, wherein the virtual object locations are defined in a television
4 program.

5 47. The method of claim 45, wherein the virtual object locations are defined in an
6 advertisement provided over a television delivery system.

7 48. An apparatus that targets virtual objects for display at a viewer reception site,
8 comprising:

9 a virtual object location identifier that identifies virtual object locations in a
10 video;

11 a virtual object selector coupled to the virtual object location identifier that selects
12 one or more virtual objects to display in one or more of the identified virtual object
13 locations;

14 a targeted virtual object manager coupled to the virtual object selector, wherein the
15 targeted virtual object manager determines virtual objects from the selected one or more virtual
16 objects to be displayed in one or more of the virtual object locations; and

17 a group assignment rules generator that provides group assignment rules for classifying
18 the reception site.

19 49. The apparatus of claim 48, wherein the determined virtual objects are determined
20 based on the group assignment rules and a personal profile of a viewer of the reception site,
21 and wherein the personal profile is stored in a memory of the reception site.

1 50. The apparatus of claim 49, wherein the personal profile is based on one or more of
2 programs watched data, virtual objects viewed data and other viewer data collected and stored
3 at the reception site.

4 51. A routine, executable on a general purpose computer, for targeting virtual objects to
5 an individual viewer, the routine, comprising:

6 a group definition routine that defines groups based on common viewer characteristics;
7 a group assignment routine that assigns individual viewer terminals to one or more of
8 the groups;

9 a virtual object location routine that determines available virtual object locations in a
10 program; and

11 a retrieval plan generator that generates a plan for retrieving one or more virtual
12 objects for display in one or more of the available virtual object locations, wherein the retrieval
13 plan is generated based on the group definitions.

14 52. A method for targeting virtual objects to viewers, comprising:

15 recognizing a virtual object location in a program;

16 receiving one or more virtual objects; and

17 generating a retrieval plan that directs viewers' terminals to insert one or more of the
18 virtual objects into one or more of the virtual object locations.

19 53. A method for targeting virtual objects to locations in a program, comprising:

20 at a local viewer terminal, identifying virtual objects for insertion into one or
21 more of the locations;

22 generating an individual viewer profile; and

1 providing one or more of the identified virtual objects for insertion based on the
2 individual viewer profile.

3 54. A method for targeting virtual objects to terminals, comprising:
4 identifying the terminals based on characteristics of individual terminals;
5 identifying virtual object locations in programs for display at the terminals; and
6 targeting the virtual objects for insertion into the virtual object locations based
7 on the identities of the terminals.

8 55. The method of claim 54, further comprising displaying multiple virtual objects
9 simultaneously

10 56. The method of claim 54, wherein one or more of the virtual objects are interactive
11 virtual objects, further comprising:

12 receiving a selection of one or more of the interactive virtual objects from one or more
13 of the terminals;
14 linking the selecting terminal to a remote location; and
15 displaying content from the remote location at the selecting terminal.

16 57. The method of claim 56, wherein the remote location is an operations center and the
17 content is an additional program.

18 58. The method of claim 56, wherein the remote location is an Internet web site and the
19 content is one or more web pages.

1 59. A terminal in a television program delivery system that targets virtual objects for
2 display to a viewer of the terminal, comprising:

3 a receiver that receives programs containing virtual object locations, virtual objects,
4 and a virtual object retrieval plan;

5 a memory that stores the virtual object retrieval plan; and

6 a processor that executes a group assignment routine to assign the terminal to one or
7 more groups, wherein the groups are defined based on common viewer characteristics, and
8 executes a virtual object assignment routine that assigns virtual objects to the virtual object
9 locations based on a comparison of the retrieval plan and the group assignments.

10 60. The terminal of claim 59, wherein the group assignment rules include an initial set of
11 group assignment rules stored in the memory.

12 61. The terminal of claim 59, wherein the receiver receives and the memory stores group
13 assignment rules, and wherein the processor uses the group assignment rules and data related
14 to the terminal to execute the group assignment routine.

15 62. The terminal of claim 61, wherein the data related to the terminal is stored in the
16 memory, the data related to the terminal including internal information generated internally at
17 the terminal and external information generated external to the terminal and provided to the
18 terminal.

19 63. The terminal of claim 62, wherein the terminal further comprises a global positioning
20 satellite (GPS) receiver, the GPS receiver determining a location of the terminal, wherein the
21 location is stored in the memory as internal information, and wherein the processor uses the
22 location to determine area of dominant influence and postal code information.

1 64. The terminal of claim 62, wherein the internal information includes programs watched
2 information and virtual objects viewed information for programs and virtual objects displayed
3 at the terminal.

4 65. The terminal of claim 61, wherein the group assignment rules are periodically revised,
5 the memory storing the revised group assignment rules and the processor determining revised
6 group assignments based on the revised group assignment rules.

7 66. The terminal of claim 61, wherein the data related to the terminal is revised, the
8 processor determining revised group assignments based on the revised data related to the
9 terminal.

10 67. The terminal of claim 61, wherein the processor uses the group assignment
11 rules to derive terminal identifying information based on other information stored at the
12 terminal.

13 68. A method for assigning targeted virtual objects to virtual object locations in one or
14 more programs, comprising:

15 identifying the one or more programs to carry the targeted virtual objects;
16 assigning the targeted virtual objects to target categories and to groups within the
17 target categories;

18 generating virtual object location group percentage breakdowns, wherein the
19 generating step comprises using generic viewing population information to assign the groups to
20 the one or more programs;

21 creating virtual object ranking percentages based on the generic viewing population
22 information;

1 determining, for one or more of the programs and one or more of the target
2 categories, targeted virtual objects with overall highest ranking percentages and group
3 percentage breakdowns; and

4 assigning virtual objects to the virtual object locations based on the determined ranking
5 percentages and group percentage breakdowns.

6 69. A method of targeting virtual objects to terminals, comprising:
7 identifying virtual objects;
8 providing the one or more of the virtual objects to one or more of the terminals;
9 generating a retrieval plan;
10 storing the retrieval plan at one or more of the terminals; and
11 providing a program to one or more of the terminals, the program including at least
12 one virtual object location, wherein the retrieval plan designates virtual objects to be displayed
13 during a display of the program.

14 70. The method of claim 69, further comprising:
15 generating group assignment rules;
16 storing the group assignment rules at one or more of the terminals; and
17 creating group assignments by assigning one or more of the terminals to one or more
18 groups based on the group assignment rules.

19 71. The method of claim 70, wherein the step of generating group assignment rules
20 comprises generating initial group assignment rules, and wherein the step of storing the group
21 assignment rules comprises storing the initial group assignment rules.

1 72. The method of claim 71, wherein the initial group assignment rules are stored at or
2 before an initial use of a terminal.

3 73. The method of claim 70, further comprising at one or more of the terminals receiving
4 the program, retrieving one of the targeted virtual objects for display in the at least one virtual
5 object location.

6 74. The method of claim 73, wherein the retrieval step, comprises:
7 comparing the group assignments to the retrieval plan; and
8 selecting a virtual object for display based on the comparison.

9 75. The method of claim 70, wherein one or more of at least one virtual object locations
10 contains an interactive virtual object, further comprising:
11 receiving a selection of the interactive virtual object; and
12 linking a terminal selecting the interactive virtual object to an alternate
13 program.

14 76. The method of claim 70, wherein the group assignment rules are provided to a terminal
15 using one of a public switched telephone network, a cable television network, a satellite
16 television network, a local area network, a fiber optic network and an Internet.

17 77. The method of claim 69, wherein the virtual objects are provided to a terminal using
18 one of a public switched telephone network, a cable television network, a satellite television
19 network, a local area network, a fiber optic network and an Internet.

- 1 78. The method of claim 69, wherein the retrieval plan is provided to a terminal using one
2 of a public switched telephone network, a cable television network, a satellite television
3 network, a local area network, a fiber optic network and an Internet.